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A Magazine of Western Ornithology

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THE CONDOR

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Issued September 22, 1922

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Volume XXIV **September-October, 1922** **Number 5**

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THE MIMETIC ASPECT OF THE MOCKER'S SONG

By DONALD R. DICKEY

WITH FOUR PHOTOGRAPHS BY THE AUTHOR

OBSERVATION of the tender age at which mockingbirds (*Mimus polyglottos*) attain a varied and "imitative" song has led the author into a train of thought and to a tentative hypothesis that falls admittedly in the class of sheer speculation. As such, however, it has interested me, and a brief note in that connection is therefore submitted to CONDOR readers. Its intent is purely suggestive. If it serves no other purpose, it may help to check the loose finality with which the mimetic character of this bird's song is popularly ascribed to pure and simple mockery. If the anthropomorphic attitude is steadfastly set aside, there remains a serious doubt in my mind as to whether this loose, popular acceptation is scientifically tenable.

On October 14, 1921, A. J. van Rossem collected an immature male Western Mockingbird which had just completed the post-juvenal moult (no. J 1452, collection of Donald R. Dickey). When taken, it was successfully "imitating" the notes of the Sparrow Hawk, Killdeer, and Cactus Wren. The rendition of these calls, together with the more characteristic mockingbird interludes, was so fluent and skillful as to convince the listener that he was hearing an old performer. The very few months which had actually elapsed since this youngster first saw light would seem to form all too short a period for the purely imitative acquisition of so varied a repertoire. May not generations of usage have made this ability an inherent rather than a mimetic characteristic?

Disregard for a moment the original manner in which the vocal versatility of the species was evolved, for in any event that is lost to us in the unrecorded past. Is it folly to suggest that the "imitative" portion of this particular individual's repertoire was as inherent and hereditary in his breast as were the true mockingbird phrases? There is a strong suspicion in my mind that if this bird had been transplanted as a nestling to a favorable habitat on which the note of Sparrow Hawk, or Killdeer, or Cactus Wren, had never fallen, he would yet have greeted approaching maturity with "imitations" of their songs. In other words, may this not be a case of parallel ability and adventitious similarity rather than actual and individual mimicry?

"But," observers will say, "we have actually heard the cries of unrelated species taken up and repeated by mockingbirds!" True, but is this not

the result of stimulus rather than tutelage,—induced parallelism, rather than true mimesis? We have all heard bird notes that resembled those of insects which were vocal at the same time and place, but we do not suggest that one learned from the other! The sound of the rattlesnake has no connection with

Fig. 35. Nestling Mocker; San Clemente Island.

that of the "rattle-weed" save in similarity, and sometimes fortuitous propinquity. Admit that the insect vocalization *might* activate the Grasshopper Sparrow, the weed *might* activate the rattler,—then, by the same token, the Killdeer *might* activate, but not teach, the mockingbird. We have all seen a frisky calf set a sedate plow horse to gamboling in the same pasture, yet no

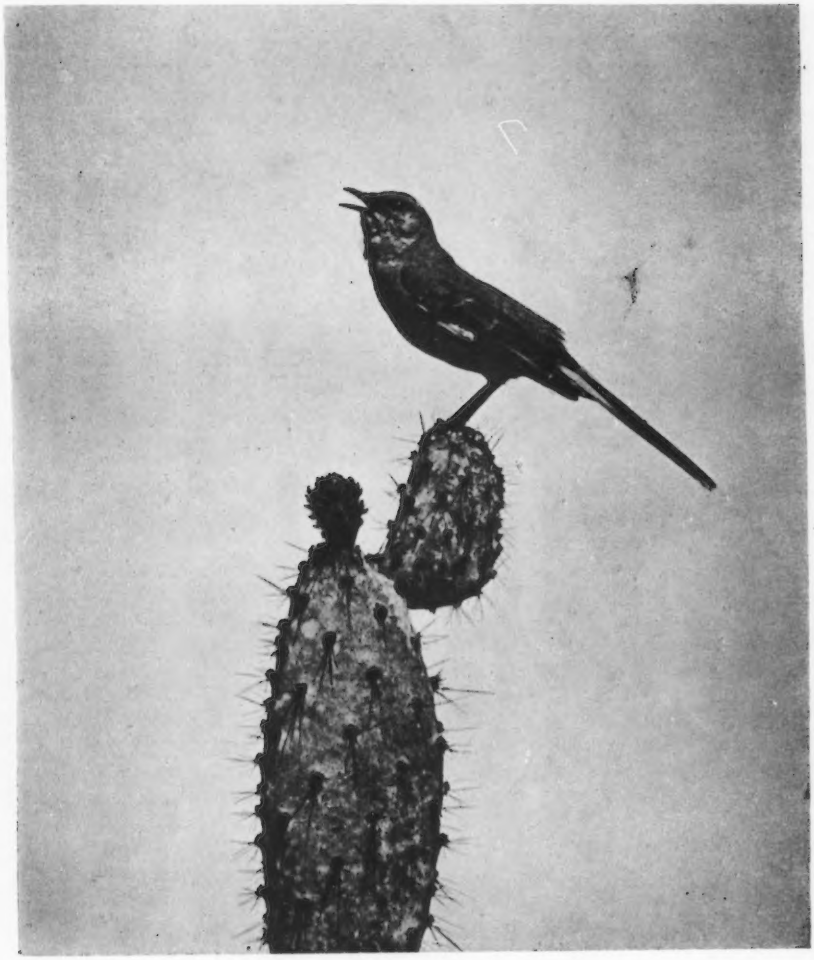

Fig. 36. THE MOCKER'S SONG.

one would suggest that old Dobbin had *learned* his sportive capers from the newborn calf. The latter furnishes a stimulus to similar activity, and nothing more.

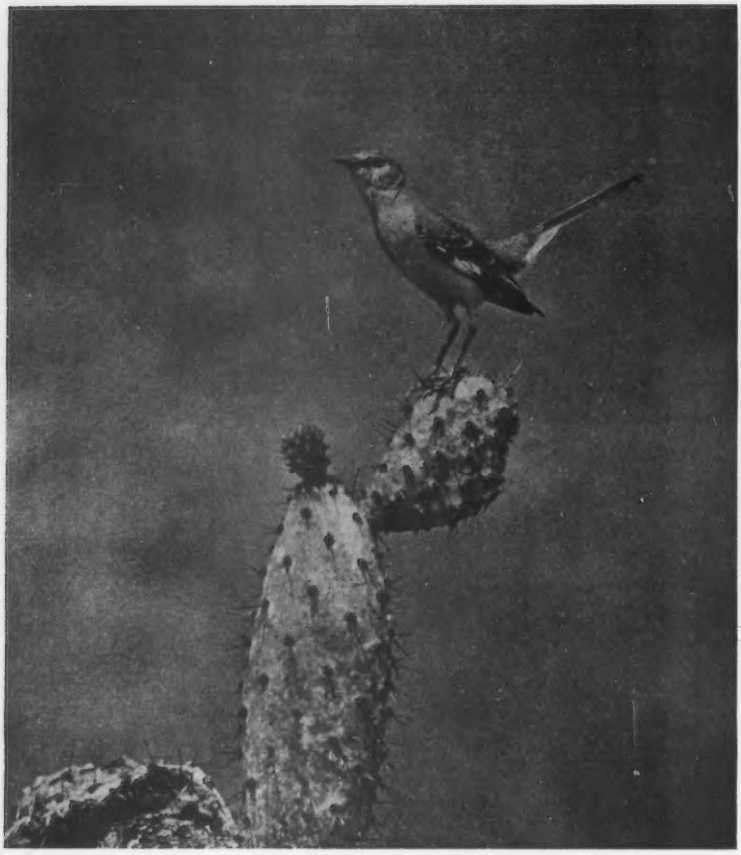

Fig. 37. The Western Mockingbird; San Clemente Island.

Experience with cage birds may be urged against this perhaps fanciful hypothesis, for "teachers" are employed, I believe, to develop the maximum purity of tone and variety of song in "roller" canaries. But, is not this purely for the purpose of attaining ultra-refinement? Every child has an inherent

capacity for running and jumping of a very creditable sort, yet a pacemaker is necessary to develop a winning athlete in an Olympic track meet. In summing up, then, no claim is made that the perfection of a mocker's so-called "imitation" is attained without examples to copy—without oral assistance—but the suggestion *is* made that the basic phrases of a mockingbird's vocabu-

Fig. 38. Nest of the Western Mocker, in Tunis Cactus.

lary which simulate the notes of other birds may well be as intrinsic a part of his transmitted vocal ability as are those other interludes which have no analogies among other species.

Pasadena, California, June 7, 1922.

OUR ENGLISH NOMENCLATURE*

By A. D. DUBOIS

FOR MANY years after subspecies began to be recognized, ornithologists gave names to all the races of a species except one; that one race was designated by the name of the species only. For example, a little more than a decade ago, *Sialia sialis* was a species of which two races were recognized, one of which was called *azurea*; the other race was nameless. We now call that nameless race, *sialis*. It is a mere repetition of the specific name, to be sure, but much better than no designation at all. In the meantime *azurea* has been changed to something else, but we nevertheless now have two subspecific Latin names for the two races of *Sialia sialis*.

In our system of English names we are not so fortunate. Bluebird, presumably, is a generic term; it is our English name for the genus, *Sialia*. How then, in view of our several North American species of this genus, can we be justified in designating one species, much less a single subspecies, as *the* Bluebird?

Of our three North American species of Bluebirds only one (the Mountain Bluebird) has been given an English name. The Mexican Bluebird (*Sialia mexicana*) has three races within our limits, with the subspecific names, Western, Chestnut-backed, and San Pedro, respectively, but no English name appears in the list to represent the species. The American Bluebird (*Sialia sialis*) exhibits a yet more remarkable combination. It has two races, one of which is called merely "Bluebird." The other race of this species has the race name, Azure. The *species* has no English name whatever.

We have no reason to fear the effect of a touch of science applied to the vulgar terminology. It should be not so much a "vernacular" system as a pure, scientific English system. A trinomial such as "Eastern American Bluebird" would impose no new weight of responsibility upon the barefoot lad who loves all Bluebirds and knows but one variety. Neither need the ornithologist feel constrained to announce to his neighbor, on the first bright day of spring, that the "Chestnut-backed Mexican Bluebird" has arrived; any more than he need tell him that his brother, "James Montgomery Birdcraft", is authority for the observation. "The bluebirds are back; Jim saw one this morning", would convey the information between neighbors quite as fully as it does at present.

As given in the current check-list, the name of the type-race of each subdivided species is usually the specific name, though frequently a subspecific term. In many cases a subspecific name has been coupled with the generic name only, as previously pointed out in the case of the Bluebird. This practice is very confusing to the student, especially to the beginner, who speaks and thinks of birds in terms of English names. As a further example, consider the Downy Woodpecker. This is a definite English name for the species *Dryobates pubescens*. There are several races. One of them (*medianus*) is called the Northern Downy Woodpecker; another (*nelsoni*), is the Alaskan Downy Woodpecker. These names are both logical and appropriate. But the names Willow Woodpecker and Batchelder's Woodpecker, other races of the

*A paper presented at the thirty-ninth Meeting of the American Ornithologists' Union at Philadelphia, November 9, 1921.

same species, contain no hint that the species referred to is the familiar Downy Woodpecker. Of the common American Robin we have three geographical races: one is called Western, another Southern, but the remaining race has no name. In the groups of Downy and Hairy Woodpeckers the length of the trinomial cannot be consistently urged as an objection, since we already have the Rocky Mountain Hairy Woodpecker.

Many of the specific designations which were contained in the old A. O. U. check-list, but which were dropped in the third edition, might very well be revived. Notable among these was the prefix, American, as applied to such species as the following:

129 Merganser	364 Osprey
160 Eider	475 Magpie
163 Scoter	486 Raven
182 Flamingo	488 Crow
196 Egret	521 Crossbill
221 Coot	529 Goldfinch
225 Avocet	697 Pipit
228 Woodcock	761 Robin

In the case of the Long-eared Owl it was consistent to drop the prefix, American, because it was superfluous and had the effect of producing a trinomial, which was applied to a species. In the common nomenclature, as in the scientific, binomials should be adequate for species. By analogy, it is doubted that "Merganser" is a sufficient replacement for "American Merganser". In connection with this prefix, "American", it is well to consider whether the same English name should apply in all English-speaking countries. The terms American, European, etc., have been used both for species and races. In the case of the White-fronted Goose, if we are to have an "European" subspecies, we ought to have an "American" subspecies also. As examples of other species which are in need of "more" name, the following will occur to everyone:

444 Kingbird	587 Towhee
456 Phoebe	735 Chickadee
501 Meadowlark	766 Bluebird

While the above are all generic names, bereft of their rightful specific designations, there is another common form of abbreviaton which neglects the generic term entirely. For example, among the ducks we have the following:

Mallard	Redhead
Gadwall	Canvas-back
Baldpate	Golden-eye
Shoveller	Buffle-head
Pintail	Old-squaw

Such abbreviations as these are very appropriately used by sportsmen. They are natural and sufficient in ordinary conversation and appropriate in literature. Such usage, however, does not justify them in the formal A. O. U. list. The word, Duck, should appear after each of them. We have also the Sora (Rail), Knot (Sandpiper), Killdeer (Plover), Ferruginous Rough-leg (Hawk), Flicker (Woodpecker) and others, in the same category. It is common custom among ornithologists and nature-lovers generally to use the term "Redwing" as an informal abbreviation of Red-winged Blackbird. The naturalists have a right to their spontaneous informalities as well as the sportsmen!—but

I think they should not be adopted in the scientific list. No species can be adequately named by a single term.

With reference to the kinds of terms that are applicable, it may be said in general that descriptive names seem more appropriate for species, since species are based on distinct characters, while locality names or the names of persons are better suited to subspecies, which are geographically variable and as a rule only slightly differentiated in characteristics. Such terms as Eastern, Western, Northern, Southern, seem eminently suitable for the designation of races, but should be avoided as far as possible for the naming of species. It would probably not be advisable to revise any existing names to comply with such usage, except in cases where an earlier name had been abandoned and could be revived without confusion. I think, for example, that "Louisiana Tanager" was a better name than "Western Tanager". The older name was geographically appropriate, had a historical background, and possessed a certain "color" or euphony, which suited the subject much better than the bald term, "Western". Furthermore, it was in use for years, and is still used in thought if not in print.

Personally, I think that the possessive form is appropriate for subspecific names but not for the names of species. If this were adopted as a rule of nomenclature it would preclude such awkward combinations as Vigors's Bewick's Wren, Anthony's Hutton's Vireo or Frazar's Hutton's Vireo; these would become Vigors' Bewick Wren, Anthony's Hutton Vireo and Frazar's Hutton Vireo.

No matter how "popular" a *false* name may be among laymen, it should not be recognized by a body of scientific men, whose endeavors are presumably directed toward education of the public. A Sandpiper should not be called a "Plover"; neither should an Anhinga be recognized throughout the English-speaking world as a "Turkey"! Even "Nighthawk" is a rather unfortunate misnomer. Probably most of us have been asked if the Nighthawk catches chickens.

Of greater importance than the selection of the most appropriate English names, is the logical presentation of them in the system of classification. At present the species and subspecies in the abridged edition of the A. O. U. check-list are "all in a jumble". Those species which have no racial subdivisions are represented in the Latin nomenclature by a binomial, so that their status is perfectly clear. But each species which is subdivided is represented by the trinomial of one of its races instead of the binomial of the species in general, while the number used therewith is the number of the species in general (without the suffix of a race). The Snow Goose will serve to illustrate. It appeared in the former list as follows:

169 *Chen hyperborea*
Lesser Snow Goose
169a *Chen hyperborea nivalis*
Greater Snow Goose

Here we have the two races of the Snow Goose nicely differentiated by English names, of ideal construction; but the first race has only the general number and the Latin binomial of a species.

In the third edition of the list we find it appearing thus:

169 *Chen hyperboreus hyperboreus*
Snow Goose
169a *Chen hyperboreus nivalis*
Greater Snow Goose

Thus we have given the first race a Latin name but have taken away its English sub-specific name, leaving only the common name of the species in general. Would it not be far better that the species and its races should appear as follows:

169 *Chen hyperboreus*
Snow Goose
169z *Chen hyperboreus hyperboreus*
Lesser Snow Goose
169a *Chen hyperboreus nivalis*
Greater Snow Goose

Each species, regardless of its subdivisions or the absence of them, would then have its permanent number, as at present, and would be distinctly represented by its binomial, apart from all subspecies. The Latin binomial should be accompanied by a corresponding English name to designate the *species*. Unmistakable English names for the groups that we call species will become even more essential as our evolution specialists discover and give names to more and more races. For certain purposes the whole subject of subspecies may properly be ignored, and in such circumstances the user of the list of birds, especially the user of the abridged list, desires a clear, outstanding nomenclature of species, in which all references to subspecies are relegated to their proper subordinate place.

Inasmuch as each species has its permanent number, it is equally important that *every* subspecies shall have a designating letter. As previously pointed out, one of the races of every species is without any designation of this kind in the present check-list. This race could be given the letter "z" and no changes whatever would be necessary in the numbers and letters now existing. If we let it be understood that the first-described race of each species will be designated by the last letter of the alphabet, while the subsequently discovered races will be represented by the first letters of the alphabet, the matter will be clear to every one.

In order to carry out this plan it is suggested that the abridged check-list, as well as the unabridged, be printed in such form that the species will stand out distinctly from their subspecies. The natural arrangement is to indent the list of subspecies, to form a vertical column farther to the right than the column of specific names. Under this scheme the Nuthatches, for example, would appear as follows:

SITTIDAE. Nuthatches.

727 *Sitta carolinensis*
White-breasted Nuthatch
727z *S. c. carolinensis*
(Carolina?) White-breasted Nuthatch
727a *S. c. aculeata*
Slender-billed White-breasted Nuthatch
727b *S. c. atkinsi*
Florida White-breasted Nuthatch
727c *S. c. nelsoni*
Rocky-Mountain White-breasted Nuthatch
727d *S. c. lagunae*
San Lucas White-breasted Nuthatch
728 *Sitta canadensis*
Red-breasted Nuthatch
729 *Sitta pusilla*
Brown-headed Nuthatch

730 *Sitta pygmaea*
Pygmy Nuthatch
730z *S. p. pygmaea*
(Northern?) Pygmy Nuthatch
730a *S. p. leuconucha*
White-naped Pygmy Nuthatch

Such an arrangement brings out at a glance the fact that there are four species of Nuthatches on the list, one of which embraces five geographical races, while two others are as yet undivided and the fourth embraces two varieties. In the following summary an attempt has been made to present in concise form the substance of the suggestions of the preceding paragraphs.

SUMMARY OF SUGGESTIONS

(A) The trinomial system should be followed consistently for English names as well as for Latin names.
  (1) Every species in the A. O. U. list should have an English name whether the species is subdivided into races or not.
  (2) Wherever subspecies are involved, each subspecies should be designated by the English name of the species preceded by an English subspecific term.
  (3) Specific common names are preferably descriptive, while subspecific names may more appropriately refer to localities or the names of persons, as well as to minor characteristics.
  (4) The possessive form should be used only for subspecific names; not for the names of species.
  (5) A misleading or distinctly false "popular" designation is very unfortunate from an educational standpoint and should not be permitted by the A. O. U. to stand as its officially recognized English name of a species or genus.

(B) Each species in the A. O. U. list should retain its permanent number, without letters affixed, as at present.

(C) Every race, or subspecies, of a given species, should have assigned to it a letter of the alphabet, to be used in conjunction with the number assigned to the species.
  (1) For the first-described or type race of a species, assign the letter *z*.
  (2) For all other races of a species retain the letters, *a*, *b*, *c*, *d*, etc., as at present assigned, using the next succeeding letter of the alphabet for each new race.

(D) The abridged check-list should be so arranged that all species will stand out distinctly from their subdivisions. Species and subspecies should not occupy columns of equal prominence.

Springfield, Illinois, June 26, 1922.

CACTUS WRENS' NESTS IN SOUTHERN ARIZONA

By FLORENCE MERRIAM BAILEY

AT the north base of the Santa Rita Mountains between 4000 feet at McCleary's, now Nicholson's (where we camped during the winter of 1920-21), and Continental at 2900 feet on the Tucson-Mexico spur of the Southern Pacific, throughout both the mesquite and catsclaw slopes leading down from the mountains and the cholla cactus flats of the lower terraces, nests of the Cactus Wrens (*Heleodytes brunneicapillus couesi*) were the most conspicuous ornithological features of the landscape.

Near 4000 feet a well-populated patch of mesquite, catsclaw, and zizyphus, which was conveniently located on the Continental road and bordered above by the fence of the cattle ranch and below by the telephone line from Madera (White House) Canyon, included approximately fifty-three acres and was utilized for an intensive study of Cactus Wren nests.

Thirty-seven nests of sufficiently recent use to show in which direction they faced were found here. Seven of these were certainly disused, and three apparently so, the remaining twenty-seven, in January or February, showing fresh entrance material or other signs of readiness for occupation.

WINTER ROOSTS

About the middle of December, when a flurry of snow whitened the Santa Rita peaks and a number of cold nights made warm nests especially desirable, I surprised two Cactus Wrens busily carrying warm lining materials to a nest in a ball of mistletoe. Remembering Mr. Anthony's notes in Zoe (II, 2, pp. 133-134) on the remodelling of New Mexico Cactus Wrens' nests for winter roosts, I looked forward to seeing more of the interesting process. But his dates, which I had forgotten, showed that the work of rebuilding was going on during pleasant weather from October 24, and about the first of December "all of the nests of the vicinity were so thoroughly repaired that they had every appearance of new nests." In the Nidiologist he recorded finding the wrens "hidden in their nests during a snowstorm in November."

Unfortunately I did not begin taking the census of the fifty-three acres until January 12, and no other Cactus Wrens were seen carrying material until spring. By January 18, when I had listed and tagged thirty-one of the thirty-seven nests, the structural part of the remodelling was all too evidently finished, although a few straws and many feathers were added to some of the nests still later. From January 13 to February 15, twenty-three of the twenty-seven good nests on the fifty-three acres were found occupied at sunset, which by repeated experiment was proved to be the retiring hour. Among the miscellaneous nests outside the fifty-three acres (also examined at sunset) on February 2 and 11 seven more were found occupied, making a total of thirty nests found used as winter roosts. Much to our surprise, on our twilight rounds a Bewick Wren was twice flushed from one of the Cactus Wren nests. A cholla cactus nest of the Cactus Wren in the giant cactus belt below, had also been used as a roost by a bird of another species, the mouth of the nest being carpeted with the ordure of a large bird.

BREEDING SEASON

When taking the nest census on January 15, a warm day that might have suggested nesting time, I heard an outburst of song and found four Cactus Wrens excitedly gathered about one tree which contained two old, broken-down nests. Two of the birds were singing with great animation, one on top of a bush spreading his tail. On January 29, another spring-like day, Mr. Bailey found some of the wrens in the fifty-three acres "singing, chasing, and fighting." Then, on February 15, what appeared a bit of courtship rivalry was witnessed. But on repeated visits the fifty-three acres was oppressively silent. On April 10 songs were heard suggesting that it was time to be watching for real nest work, but the songs came from only two or three places. In one of these the day before, April 9, I had found a nest in the first stages of construction. Outside the fifty-three acres, in the bottom of a neighboring hot wash, on April 13, Mr. Bailey found a nest being built in a cholla, both wrens gathering bills-full of grass and slender stems from the ground, and singing as they worked. Another cholla nest on the fifty-three acres had been begun before May 1, the week of our departure. But on April 30 about half of the accessible roosting nests were examined for sitting birds in the daytime, and nothing was discovered.

In the adjoining Catalina region, Mr. W. E. D. Scott has said the first eggs are laid as early as March 20; and on March 13, 1885, Mr. Herbert Brown of Tucson reported nesting well under way, the general nesting season, correlated with February rains, being unusually advanced. But as the winter of 1920-21 was marked by severe drought, said to be the worst in thirty years, the breeding season as well as the vegetation may well have been retarded. Whether this was the case, or the fault was mine in failing to discover the breeding nests, the unfortunate fact remains that I was unable to correlate the summer and winter uses of the nests and had to leave unanswered many of the questions I had hoped to answer; among them—How many of the roosting nests were cock nests and how many of them would be used by the females for their eggs and young?

NESTING SITES

While many of the nests were grouped within a small radius, in some cases two or three being in the same tree, on the other hand, isolated nests were far from being the exception. Suitable bunches of mistletoe for building sites seemed one of the controlling factors.

While the name Cactus Wren was justified in this locality as in others by the innumerable nests found in cholla cactus, here thorny trees and bushes especially catsclaw and zizyphus (*Z. lycioides*) or lote bush, were also used extensively, while mesquite and the dense shrubby hackberry or grenjeño were used occasionally for nesting sites. It was interesting to note that zizyphus bushes containing nests generally stood under mesquite trees, so getting double protection. The protection afforded by the armament of thorns was often so complete that it was impossible to reach a nest without cutting away the obstructing branches. Even that, however, did not always satisfy the nest makers, for such bulky, conspicuous nests need to be safeguarded in every way from hawks, owls, and other enemies. Thirty-five out of sixty-four nests examined were not only protected by the entangling thorns of the surrounding branches but were built within clusters of the red-flowered mistletoe (*Phora-*

dendron californicum) which in many cases partially or wholly concealed them. One nest lay on a level branch covered by an unusual horizontal growth of mistletoe and showed only as a darkened mass inside, but most of them were in round ball-like masses of mistletoe, commonly at the ends of branches in terminal mistletoe rosettes, frequently so dense that it was impossible to obtain nest statistics or photographs. One of the nests without mistletoe protection was built under an umbrella-like mass of foliage.

NEST CONSTRUCTION

In form, the Cactus Wren's nest suggests a retort, having a large globular chamber about six inches in diameter approached through a long passageway or entrance, the whole normally about twelve inches in length, the mouth of the entrance being about three inches above the base of the globular chamber. This nest chamber in course of years becomes a thick felted mass of gray, weathered plant fibers so hard that saucer-like sections sometimes crack off from the back, showing the solid, sodden bottom of the nest. The entrance, on the contrary, is made of long straw-like plant stems which may easily get blown about and so often need replenishing.

When the old nests are repaired and ready for winter use these new straw-colored entrances often afford a striking contrast to the old gray globes, although occasionally the new material is lavishly distributed over the whole top of the nest. One nest, found on March 21, looked new, only straw-colored material showing from the few possible points of observation; but it might easily have had merely a coating of fresh material. A mass of fuzzy plant material was outside the mouth. An old gray nest fragment which might have supplied foundation material was behind the nest. Besides replenishing the straw entrance, the wrens re-line for cold weather. In one instance fur, and in many instances the small gray body-feathers of the Gambel Quail, and sometimes well-marked feathers of other species of birds, were seen in the entrances and about the mouths. One nest used for roosting purposes during the winter, when examined for eggs on April 30, had its globular chamber so thickly lined with soft feathers that it suggested a feather bed.

Considerable variation and adaptability were shown in the construction of the nests examined. Sometimes in the process of repair the angle of the entrance was changed. In one case, while the old nest faced east, the new entrance faced south by east, almost at right angles, presumably for better support for the mouth and larger twigs for perches at the mouth. The contrast in angle was emphasized by the color difference, the old nest chamber (about seven inches long and sagged at base) being gray and weathered, while the new entrance (about six inches long) was straw colored.

As it has been said, more than half the nests in other than cactus were built inside a round ball-like mass of mistletoe and were supported by its innumerable twiglets. The value of this support is realized when considering the tendency of the hard outer shell of the globular chamber to crack off if unsupported.

In one instance the mistletoe protection made the builders extra work, for the diameter of the mistletoe ball was so great that the hallway of the nest had to be abnormally extended to provide an exit for the family at the outer edge of the ball. When not built inside a mass of mistletoe the nest was variously supported—by a crotch, by a horizontal branch and the trunk of

the tree, or by an angle of branches. In one case the whole nest lay along a drooping branch so that the entrance was at the same height as the bottom of the globe instead of three inches above, as commonly. Here, as if to preserve the integrity of the nest chamber, it was high arched, the deepest part measuring seven inches. In some cases for structural or other reasons the entrance was much lower or higher than typical, varying from almost level to four, five, and seven inches above the base of the retort. In one unusually large nest, evidently generations old, fresh material piled on lavishly kept the entrance high above the old sagged base.

An extreme instance of the tendency to utilize the mass of material already gathered in an old nest rather than to gather new material to build from the foundations up was shown in a nest that was being completed when we left. The old weathered remnant which was flattened down and drawn out horizontally was taken as roofing for the new nest although the nearest support for a base was about ten inches below the roof. To partly fill the gap the lighter material of the entrance of the old nest was pulled down. Whether the resulting structure satisfied the builders or not, we left too early to tell. While the entrance of the old nest had faced northwest, that of the new one faced southeast. In another peculiar remodelled nest the old one was a cup with the entrance on top. A few fresh straws were found here on January 30 but on February 22 there were no further signs of work or of use.

An inferior nest supported poorly except at the back and exposed on top was beginning to break down and stood all winter unrepaired and unused. Another inferior nest had the entrance so poorly supported that it was blown apart and had caved into the twigs several inches below. In still another the bulky globe protruded conspicuously and a slab was cracking off the back. A high nest, at the tip of a long branch about nine feet above the ground, stood with big gaping mouth and dangling straws, suggesting the visit of an owl; while an unusually low nest, within easy reach of ranging horses and cattle, had one of its supporting twigs broken off, the nest material being strewn over the branches for nine inches.

NEST MATERIAL

The material of this low, ruined nest, when examined by Mr. Gorm Loftfield, one of the Carnegie botanists conducting experiments on the neighboring U. S. Range Reserve, was found to contain eighteen species of plants, as follows:

Pectocarya	Hosackia trisperma
Allocarya	Acacia constricta
Franseria tenuifolia	Acacia greggii
Plantago ignota	Prosopis j. velutina
Gilia aurea	Portulaca
Phacelia distans	Muhlenbergia porteri
Eriogonum polycladon	Heteropogon contortus (young plant)
Eriogonum abertianum	Scleropogon brevifolius
Lupinus parviflorus	Aristida bromoides

Another nest examined by Mr. Bailey had a long Plantago stem sticking out in front and others attached to the body of the nest, and included several species of long-stemmed grass, krinitzkias, and wild mustard. Feathers of Road-runner and Sparrow Hawk were found on the outside, and downy feath-

ers in the hallway. A new cholla nest that was being built on our departure was notable for its beautiful pearly seed-scales taken from the Ephedra, scales which suggested white rosettes. Plant materials from a cholla nest were identified by Mr. Gorm Loftfield as follows:

Eriogonum polycladon, fair amount.
Eriogonum abertianum, fair amount.
Evolvulus (argenteus?), some.
Haplopappus gracilis, little.
Chaetochloa composita, fair amount.
Lupinus parviflorus and Hosackia trisperma, fair amount in one part of nest, practically none elsewhere.
Aristida divaricata, much.
Aristida bromoides, much.
Bouteloua rothrockii, fair amount.
Bouteloua aristidoides, some.
Andropogon saccharoides, fruits mostly.

DIRECTIONS FACED BY NESTS

A study of the direction faced by the nests was taken up to determine if the birds were influenced in building by the prevailing direction of the winds and storms which come from the Gulf of California to the southwest, from which would also come the hottest, most prolonged summer sunshine.

In the summaries given beyond, the directions between the cardinal points of the compass are lumped and seem to indicate a preference for the sunny and windy exposure. Taking the nests facing only directly southwest, however, we have only fourteen out of ninety-five; but in a matter of wind and sun narrow limitations seem unsafe for generalizations.

It can be fairly said, nevertheless, that southwest nests, not in cholla, so far as could be determined through obstructing mistletoe, were so well supported and protected as to be practically storm proof. Perhaps the most striking of these was in a catsclaw surrounded by dense mistletoe, for it lay on the main leaning trunk and was arched so low as to present a strong wall to the wind.

The damage done to badly situated and poorly constructed and protected nests was easily seen, in one case the whole entrance being blown to one side. The cholla nests especially showed evidence of being beaten by the wind, many of them lying on top of low cactus, inadequately anchored and open to the storms.

SUMMARY

I. THIRTY-SEVEN NESTS INSIDE THE 53 ACRES

Location. Of the 37 nests, 21 were in catsclaw (15 in red mistletoe), 15 in zizyphus, and 1 in mesquite (in red mistletoe).

The approximate height from the ground varied from 4 to 9 feet; 5 were 4 to 5 feet; 9, 5 to 6 feet; 11, 6 to 7 feet; 5, 7 to 8 feet; and 7, 8 to 9 feet.

Approximate length of nests. Those whose outline could be seen varied from 7 to 12 inches, 12 inches apparently being the normal length.

Feathers seen at entrance. In 15 of the nests low enough to be examined, feathers were seen either in the mouth or outside the entrance. Sometimes they were scattered among the leaves below as if dropped from the entrance.

Disused nests. Only 7 surely, and 2 probably, were disused.

Wrens found roosting in nests. Of the 23 wrens found, the earliest was discovered at 4:28 P. M. (January 13), no others being found for nearly an hour later. Practically all went in at sunset, the afterglow being noted at 6:10. The records ran: 5:40 P. M. January 30; 5:53 P. M. February 3; 5:54 P. M. January 30; and 5:55, 5:55+, 6:01, 6:03, 6:05, 6:05+, 6:07, 6:10 (also February 3), 6:10+, 6:12, and 6:13 P. M. February 2; most of the others being recorded after sunset.

II. TWENTY-SEVEN MISCELLANEOUS NESTS OUTSIDE THE 53 ACRES

Location. Of 27 nests, 17 were in catsclaw (14 in red mistletoe), 2 in zizyphus, 4 in mesquite (in red mistletoe), and 4 in shrubby hackberry.

The approximate height from the ground varied from 4 to 9 feet, 2 being 4 feet; 7, 5 to 6 feet; 6, 6 to 7 feet; 4, 7 feet; 6, 8 to 9 feet; and 2, 9 feet.

Approximate length. One over 10, and one, 13 inches, were recorded.

Feathers seen at entrance. In 6 nests.

Wrens found roosting in nests. Of the 7 found, one was recorded at 5:45 P. M. February 2; the rest "at sunset," February 11.

III. LOCATION OF 64 NESTS INCLUDING 37 ON THE 53 ACRES AND 27 MISCELLANEOUS ONES OUTSIDE THE 53 ACRES

Of 64 nests, 38 were in catsclaw (29 in red mistletoe), 17 in zizyphus, 5 in mesquite (in red mistletoe), 4 in shrubby hackberry; and altogether 34 in red mistletoe.

The approximate height from the ground varied from 4 to 9 feet, 7 being 4 to 5 feet; 16, 5 to 6 feet; 17, 6 to 7 feet; 9, 7 to 8 feet; and 15, 8 to 9 feet.

IV. THIRTY-ONE NESTS IN CHOLLA CACTUS

Location. In the 31 nests examined, the approximate height from the ground varied from 2½ to 6 feet, there being only one under 3 feet. There were 12 from 3 to 4 feet (3 being 3½ feet, 4 being 3 feet 9 inches); 13 from 4 to 6 feet (5 being under 5 feet); the height of 5 being unrecorded.

Feathers seen at entrance. In 10 nests.

Disused nests. Six surely, and one probably.

While some of the cholla nests examined were substantial and well protected, most of them were decidedly inferior to the nests found in other bushes and trees. Being lower and more exposed to wind and storm, especially in the case of those on top of the lowest chollas, they had apparently been blown to pieces, presenting a most dilapidated appearance. Of 6 nests in a radius of about 25 feet, there were good, old, and partly demolished ones.

Feathers of Gilded Flicker, Scaled Quail (scaled ones), and of Verdin (yellow ones) were found. In one nest hard to get at, overhanging straws suggested an entrance from below. One unfinished nest was curved around, while another had the mouth turned to one side, as if to avoid obstructing cactus arms.

DIRECTIONS FACED BY NESTS

I. 37 nests on 53 acres: North, 4; northeast, 5; east, 1; southeast, 3; south, 3; southwest, 12; west, 2; northwest, 7.

II. 27 miscellaneous nests outside of 53 acres: North, 4; northeast, 3; east, 2; southeast, 6; south, 4; southwest, 5; west, 2; northwest, 1.

III. 64 nests, including 37 on 53 acres and 27 miscellaneous ones outside of 53 acres: North, 8; northeast, 8; east, 3; southeast, 9; south, 7; southwest, 17; west, 4; northwest, 8.

IV. 31 nests in cholla cactus: North, 2; east, 4; southeast, 4; south, 8; southwest, 8; west, 1; northwest, 4.

V. 95 nests, 37 in 53 acres; 27 miscellaneous, and 31 cholla nests outside 53 acres: North, 10; northeast, 8; east, 7; southeast, 13; south, 15; southwest, 25; west, 5; northwest, 12.

Washington, D. C., May 31, 1922.

NOTES ON THE SUMMER AVIFAUNA OF BIRD ISLAND, TEXAS, AND VICINITY

By ALVIN R. CAHN

WITH SEVEN ILLUSTRATIONS BY THE AUTHOR

SOME THIRTY miles south of Corpus Christi, Texas, and about four miles off the coast, there rise out of the Laguna de la Madre two tiny, sun-baked shell reefs, known locally as Big and Little (also South and North) Bird Islands. So small are these spots that they appear on but very few maps, and so unimportant are they that they are known only to a few well-informed ornithologists, local Mexican fishermen who raid them periodically for birds' eggs, and an occasional adventurous picnic party. Even the local game warden stationed at Corpus Christi has never visited the islands in the course of his long local service. In spite of which, the Bird Islands are today among the most interesting spots, ornithologically, in all Texas.

The Laguna Madre is a long, very narrow strip of water that is almost cut off from the Gulf of Mexico by the equally long, sandy ridge of Padre Island, which extends from opposite Corpus Christi southward, paralleling the coast, to Point Isabel near the mouth of the Rio Grande, a distance of about one hundred miles. Padre Island acts as a protective barrier to this section of the coast of Texas, receiving the brunt of the attack of the waters of the Gulf of Mexico. Yet even this protection is insufficient when the furious storms characteristic of the region sweep shoreward. At such times the waters, whipped into mountainous waves by a terrific gale, rise in their fury, completely overwhelm Padre Island, and rush madly on the coast, which then may be submerged beneath twenty or more feet of turbulent water. When this occurs (the last big storm was in September, 1919), the Bird Islands, which rise above the water a scant two or three feet at the highest point, sink completely from sight, to reappear again days after the storm is over. Such storms play havoc with the fauna of the islands, and, when they occur during the breeding period of the thousands of birds nesting upon them, a terrific loss of life results. Since the islands are so low, their shape and size are constantly changing to a greater or less extent, which accounts for the difficulty the writer had in getting any idea of the size of the islands prior to his visit.

Bird Island (in order to simplify matters we shall refer to Big Bird Island, where the writer did most of his work, simply as Bird Island) is composed mainly of crushed shells, with occasional patches of a black, mucky material, and a sprinkling of sand. The central portion is covered with a low, creeping, succulent vegetation which fairly covers the ground, but which fails to conceal even a brooding gull. A few prickly-pear cacti occur locally, and two scraggly clumps of sunflowers are the only plants that break the otherwise monotonous uniformity of the vegetation. There is no shade anywhere for anything larger than an insect, and the entire island lies gasping under a semi-tropical sun. The surrounding waters teem with fish and other aquatic life which afford an abundant food supply to the birds. As to the island, except for a few insects that are blown out from the shore, and a few crustaceans, notably the fiddler crab, which burrow into the wet beach, it is practically lifeless—except, of course, for the thousands of wheeling, screaming sea-birds that breed upon it. On this island, less than half a mile in length

and not over a hundred yards in width, so unattractive in its physical features, the writer, accompanied by Mr. W. A. Rounds and Mr. S. Welsh, spent the period between May 26 and June 2 inclusive, eight wonderful, unforgetable, sweltering days and nights, surrounded by thousands of clamoring birds, studying and photographing.

A number of papers have been published dealing with the birds of the general vicinity of Corpus Christi, and a few of these give casual mention to Bird Island. Of the older papers, those of Singley (1), Hancock (2) and Chapman (3) cover the general region, and the more recent paper of Pearson (4) lists a few of the species of birds found on the island. However, as far as the writer has been able to ascertain, nothing has been published dealing with this most interesting island as the focal point, and inasmuch as 68 species were identified on and about the island itself, it seems advisable to offer the list as it now stands. This paper is the third of a series of avifaunal studies undertaken by the writer (6 and 7), in various parts of the state of Texas.

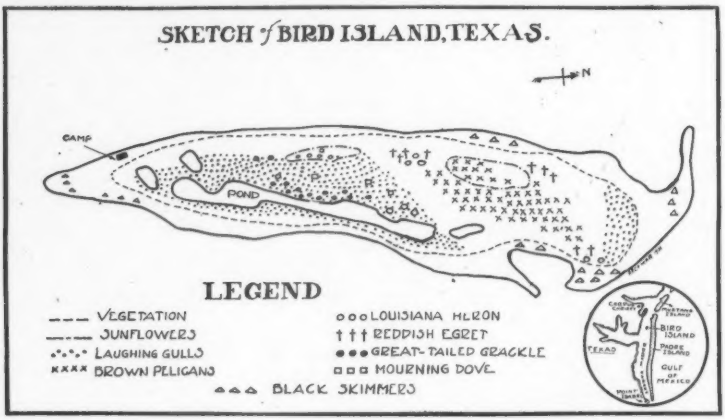

Fig. 39.

(Since this article was written, the writer has learned that the Bird Islands are among six small islands just rented by the National Audubon Society for a period of fifty years. This places the vast number of breeding birds under much needed protection. Both the Audubon Society and the state of Texas are to be congratulated on this great step in conservation.)

A list of the birds found by the writer in the vicinity of Bird Island follows.

1. **Podilymbus podiceps.** Pied-billed Grebe. Ten records are at hand, totalling sixteen individuals. Frequents the indentations of the shore-line, and nests in suitable (reedy) locations on the mainland. On May 30 one bird was found at daylight swimming about in the inland lagoon within the island.

2. **Larus delawarensis.** Ring-billed Gull. A single specimen, evidently dead for a period of weeks, was found in the heart of the pelican rookery. Undoubtedly a migrant only.

3. **Larus argentatus.** Herring Gull. Two circled over the island for nearly two hours on the morning of May 27. Their plumage was intermediate between the winter

and summer condition; the birds were either wanderers or non-breeding individuals such as are occasionally found far away from the nearest breeding ground.

4. **Larus atricilla.** Laughing Gull. An abundant breeding species. On Bird Island these gulls had but a single egg in the nest on May 26, when we arrived, and before we left practically every nest had its full complement. After the first egg has been laid, the subsequent eggs are deposited on successive days. On this island the average complement was three: out of 250 nests in which the laying was finished, 192 contained 3 eggs, 52 had 4 eggs, 5 had two, and a single nest contained but 1 egg. On Little Bird Island, nests contained the first egg on May 31. No young were hatched, and no eggs were found anywhere that were well along in incubation. My estimate showed about 2500 pairs of these birds on Bird Island, and about 600 pairs on Little Bird. The nests were invariably located among the succulent vegetation, the birds avoiding absolutely both the open beaches and the soggy edges of the inland lagoons. When we first reached the island the birds were very timid, and wheeled, screaming, over our heads, darting at us and making a great stir. This commotion spread rapidly the entire length of the island until thousands of silvery wings flashed in the sun. Soon, however, our presence was accepted, and, though our approach always sent a few into the air, the general alarm soon died, and the disturbed birds would return to their domestic duties in less than a minute. The greatest vocal activity in the colony occurred usually just at dusk and continued until well after dark. By ten o'clock at night things were fairly quiet, the "laughing" commencing again about three o'clock in the morning. Considering the early stage of incubation of the eggs, it was surprising to find the birds sitting so "close": one bird under observation was absent from her nest only eleven minutes in twenty-four hours. No amount of juggling the eggs confused the birds, which evidently return to the *spot*, rather than to the *eggs*. One bird refused to settle on her own eggs when the nest and contents were moved three feet from its original site. Replaced again later in the day, she returned to her incubation apparently quite unconcerned.

5. **Geochelidon nilotica.** Gull-billed Tern. About two hundred of these birds were seen daily on Bird Island which, in fact, they never left, though the species was not yet nesting. The birds spent most of their time on the east side of the island, circling only a short distance out over the Laguna.

6. **Sterna caspia.** Caspian Tern. Considerably more abundant, I believe, than the preceding species, but of much more restless habits. Pearson (4) reports "many young Caspians" on May 23, 1920. On June 2, 1921, it is interesting to note that the species had not even begun to nest, as no young birds, nor any old nests, were in evidence. In this connection it may be stated that the conditions on the island in 1921 differed radically from those reported by Mr. Pearson in 1920, many species being present in greatly reduced numbers (both adults and nests), and the whole breeding season apparently nearly a month later.

7. **Sterna maxima.** Royal Tern. An abundant breeding species, though not nearly as abundant as found in 1920 by Pearson. About 500 individuals frequented Bird Island, and about 200 more were found on Little Bird. The first egg laid by the species was found the morning we left the island, June 2, though the shallow depressions which were to serve as nests were in evidence two days earlier. It is evident that there were to be two nesting blocks, one in the sand and shell at the extreme south end of the island, and another just south of the bay at the northeast corner of the island. None of the nests contained lining material of any sort.

8. **Sterna sandvicensis acuflavida.** Cabot Tern. About 400 of these terns were present on Bird Island, and less than 100 on Little Bird. The species had not yet begun to nest, though it is a common breeding species on both islands.

9. **Sterna hirundo.** Common Tern. A few Common Terns were found on Little Bird Island, and one clutch of three eggs, perfectly fresh, was taken. Not really common, but a breeding species.

10. **Sterna antillarum.** Least Tern. A breeding species on Little Bird Island, and seen only twice at Big Bird. On the former island, fourteen nests, none containing over two eggs, were found. A little colony of five nests was found on the Laguna side of Padre Island, opposite Little Bird Island. The birds were very timid, and refused to be photographed.

11. **Hydrochelidon nigra surinamensis.** Black Tern. The presence of these

birds, which ordinarily breed so much farther north, is a little surprising. Every evening while we were on the island a flock numbering about eighty individuals came to Bird Island, appearing from the north at about 7 o'clock. The birds flew over and about the island for some quarter of an hour, flying at a great rate of speed, finally disappearing to the south, following the Laguna Madre. No Black Terns were seen at any other time, nor in any other place, nor is there any evidence of their breeding in the vicinity.

12. **Rynchops nigra.** Black Skimmer. An abundant breeding species. The nesting season was just beginning as we left, many nests containing two eggs on June 2; no nests were found containing more than two eggs. The nests were pretty well scattered about the edge of the island, though the greatest number were near the northeast end. About 400 birds were living on Bird Island, and about 50 on Little Bird, these

Fig. 40. A BROWN PELICAN AT HER NEST.

latter having two eggs in the nest on May 29. The birds were extremely active all day, and their hoarse, grating cries were heard well into the night after other bird sounds had practically ceased. Also, their voices were the first to be heard in the morning. After watching these birds carefully for eight days, the writer has no evidence to offer to show that they feed in the orthodox manner in which they have always been supposed to feed. On the contrary, he feels at the present time that Mr. Arthur (9) is correct when he says that the birds pick up their food while standing in the water. This I *saw* through powerful binoculars again and again when the birds stood in the shallows, and, though I watched hundreds of the birds "skimming", I never saw the slightest indication that they were catching fish while on the wing.

13. **Anhinga anhinga.** Water Turkey. Three "snake birds" were seen while we were on the way to the island on May 26. These were in every case sitting on old

piles or poles used by the fishermen in their seining operations. On May 30 two Water Turkeys were found at day-break sitting at the tip of the sand spit at the north end of the island. The birds do not breed on the island, as there is no suitable nesting site.

14. **Phalacrocorax vigua mexicanus.** Mexican Cormorant. About a dozen seen in the Laguna Madre during our travels to and from the island. A pair was seen daily at Bird Island, where the birds frequented the spit at the north end, spending hours at a time out of the water in company with the pelicans. It is altogether likely that the species breeds in suitable places along the Texas coast in this region, though we had not the time to hunt for their nests.

15. **Pelecanus erythrorhynchos.** White Pelican. There was no evidence of the presence of this species when we first reached the island. On May 30 a flock of seven was seen on Bird Island, and later in the day the same flock was seen again on Little Bird. These seven were seen daily from this date, and on the afternoon of June 1 a flock of forty-six came to Big Bird, and they were still there when we left the next day. Pearson found them with young already hatched on Little Bird on May 23, 1920; in 1921 either they were not breeding on the islands, or else the nesting had not yet begun. The behavior of the large flock indicated strongly that the nesting was not in progress. Compared with the Brown Pelicans, the White were extremely timid and could not be approached for photographic purposes.

16. **Pelecanus occidentalis.** Brown Pelican. An abundant breeding species on Bird Island only, where there were at least 400 nests as compared with the 48 nests found in 1920 by Pearson. The Pelicans occupied about one quarter of the island, and this region was occupied by no other species except a few Reddish Egrets that nested around the edge of the rookery. Almost every stage in the life history was present. Nests which contained perfectly fresh eggs, the complement not yet completed, were found by the side of nests already deserted by the young which were wandering about in great flocks, but which were not yet old enough to enter the water. Every stage in the development of the young was there: young were watched as they came from the egg—black, naked, hideous little creatures—while other nests showed families in all stages of down development and primary growth. The average number of eggs or young per nest was three. The young leave the nest almost before they are able to walk, and flop around on the ground using the wings and legs in their efforts at locomotion. These young do not wander far, but return to the nest, climbing back into it with the aid of legs, wings and bill. The food consists mainly of mullet (*Mugil cephalus*) and menhaden (*Brevoortia tyrannus*) as shown by regurgitations as well as by a peculiar habit evidenced in a number of cases where perfectly whole, fresh fish were placed in the nest with the young. These the babies pick at for a time, but do not eat, and the fish are allowed to remain in the nest until the stench is terrible. In fact, the whole pelican rookery reeked. The mortality among the young is very great, due largely to the heat. If the young chance to hatch during the absence of the adults, they are almost certain to die as a result of exposure to the unmerciful sun. A number of such deaths were witnessed, occurring within half an hour after hatching. Fully 200 eggs lay on the ground among the nests, decomposing in the heat, and every once in a while one of these would explode, reminding one in more ways than one, of a gas bomb! Many older birds, young well advanced in the wandering stage, were found dead, this being probably due largely to the punishment they receive if they chance to wander within the reach of the bill of an incubating pelican. The old birds whack the babies over the head with a snap of the bill that can be heard amid the din of the rookery for a distance of fifty yards. It is very evident that these blows daze the youngsters, who stagger away drunkenly as a result. For a further account of these birds, the reader is referred to a paper by the writer dealing with this rookery (7).

17. **Anas fulvigula maculosa.** Mottled Duck. Eight representatives of this species were seen en route to the island. These birds were found in little coves or bays of the mainland, and they undoubtedly breed in favorable localities. A single individual was seen sitting on the beach of Little Bird on May 30.

18. **Marila affinis.** Bluebill. A male and two females were seen off the north end of Bird Island on May 29, 30 and 31, on which date they disappeared. They were never seen to fly, and it is possible that they were "cripples" left over from the hunting season. It is altogether possible that such "winged" birds breed locally.

19. **Ajaia ajaja.** Roseate Spoonbill. Three "flamingos" were found on May 30

on Padre Island, just opposite Little Bird Island. They were flushed from a clump of shrubs upon which they were sitting, and flew across Bird Island, as nearly as could be seen, toward the mainland. There was no breeding evidence, but there is no reason why the species should not nest in suitable localities.

20. **Ardea herodias wardi.** Ward Heron. A common breeding species, both on the mainland and on the islands. There is a large colony near Flour Bluff (about 13 miles south of Corpus), the birds breeding high above the ground in trees. Six nests were found on Bird Island, and twenty-three on Little Bird. On the latter island the nests contained fresh eggs, the full complement in many cases not reached, while on Big Bird, a young heron was found already out of the nest. On the islands the nests were built of necessity upon the ground, and were made of huge piles of twigs, grass, weeds, etc., much of which had to be brought either from Padre or the mainland. In

Fig. 41. YOUNG BROWN PELICANS.

many cases Brown Pelicans had used the nests of this heron for their own, and in one case two rotten heron eggs were found in a heron nest occupied by two very recently hatched pelicans. The species also breeds locally on Padre Island.

21. **Egretta candidissima candidissima.** Snowy Egret. A single specimen of this beautiful species was seen on the afternoon of May 30, standing on the beach of Padre Island, just across from Bird Island. The bird permitted close approach, and was not at all timid.

22. **Dichromanassa rufescens.** Reddish Egret. A common breeding species on both Bird Islands. About twenty nests were located on Little Bird, and thirty-seven on Big Bird. These nests contained, on the average, three eggs, which began to hatch on June 1. The nests were built among the succulent vegetation, from two to six inches above the ground, which is the best elevation the birds could obtain under the circum-

stances. No birds in the white phase were seen. The adults were quite timid.

23. **Hydranassa tricolor ruficollis.** Louisiana Heron. An abundant breeding species, somewhat more common than the preceding, on both islands. The nests were very similar in construction, position, and in the condition of the eggs, though there were no young hatched when we left. Distinctly less timid, the birds were, however, unapproachable for photographic purposes.

24. **Florida caerulea.** Little Blue Heron. Five individuals of this species were seen on Padre on June 1. There is no evidence of breeding in the vicinity.

25. **Butorides virescens virescens.** Green Heron. A breeding species locally along the mainland, where the birds nest in low trees, often mesquite. Several visited the inland lagoon on Bird Island on May 27, 30, and June 2. Seen twice en route to the island, flying near the shore, and once on Padre on May 30.

26. **Nycticorax nycticorax naevius.** Black-crowned Night Heron. Seen only on Padre Island, where four birds were seen on June 1. These birds seemed very much concerned at our presence, and their actions indicated the possibility of a nest. Heard often during the night, when their hoarse croaking indicated that the birds were going toward the mainland.

27. **Gallinula galeata.** Florida Gallinule. A single bird of the species, in full summer plumage, was in the lagoon on the island when we arrived. It left at once, but was back again the next morning. When the bird left this time it did not return.

28. **Fulica americana. Coot.** A single Coot was present on Big Bird Island all the time we were there. It frequented the sand spit at the north end, and was always in close association with the pelicans. Whenever the pelicans left the island, the coot went along; when they returned, it returned also. There was no sign of a mate. Several coots were seen near the mainland at various times.

29. **Himantopus mexicanus.** Black-necked Stilt. One individual of this beautiful species—the first the writer had seen alive—was found wading at the edge of the water on Little Bird Island on May 29. As we approached, it flew a short distance, then settled on the water and swam toward Padre. No breeding evidence.

30. **Macrorhamphus griseus griseus.** Dowitcher. One representative of this species was seen twice on Little Bird. As the species is rare in this region during the late spring, and as the bird showed marked difficulties in flying, I am led to the belief that the bird was a stranded "cripple" left over from the shooting season.

31. **Pelidna alpina sakhalina.** Red-backed Sandpiper. A flock of nine of these birds was seen May 27, 28, and 29, on Bird Island. The birds frequented the shore-line and the edge of the large lagoon within the island, and were very tame. Remained at the south end of the island most of the time, often coming within a few yards of our camp. Migrants only.

32. **Calidris leucophaea.** Sanderling. Two dead individuals were found at the north end of Little Bird Island, badly disintegrated, but identifiable by the absence of the hind toe. Migrants only.

33. **Totanus melanoleucus.** Greater Yellow-legs. Three Greater Yellow-legs were seen on Bird Island the day we arrived, but were not seen again. Padre Island, May 30, two; Little Bird Island, May 31, three. Migrant only.

34. **Totanus flavipes.** Lesser Yellow-legs. A little flock of six frequented the south end of Bird Island near camp during our entire stay; seldom leaving the point unless frightened by our approach.

35. **Numenius americanus.** Long-billed Curlew. Two birds of this species were standing near the water on Little Bird when we aproached it on May 31. The birds were so tame that we rowed past within twenty-five feet of them. These birds remained on the island all that day, leaving toward dusk.

36. **Oxyechus vociferus.** Killdeer. A common breeding species along the mainland and on Padre Island, where young birds were already hatched on May 30. Several of the species were seen on Bird Island, where they remained only for a few hours.

37. **Aegialitis nivosa.** Snowy Plover. Several pairs of this plover were seen on Padre Island, and a single bird visited Bird Island on May 30. From the behavior of the birds on Padre, I have no doubt that they breed there, though the nests were not found.

38. **Ochthodromus wilsonius.** Wilson Plover. A common species along the coast, and seen on all of the islands. Breeds in suitable places, but nesting had not yet begun when the writer left the region.

39. **Haematopus palliatus.** Oyster-catcher. I was considerably surprised at the scarcity of this bird in such a favorable location. Only three of the species were seen, two on Padre and one on Bird Island. Probably a breeding species, and very likely more common than present data would seem to indicate.

40. **Colinus virginianus texanus.** Texas Quail. One small flock of seven was seen on Padre, but the birds could be heard daily both on Padre and on the mainland. Data indicated the species as common, and it breeds on Padre. None was seen on Bird Island, and it is more than likely that the Padre Island birds do not travel across the Laguna Madre to the mainland, as there is an abundance of food on the island.

41. **Zenaidura macroura carolinensis.** Mourning Dove. A breeding species on both of the Bird Islands. On Big Bird five nests, each containing two fresh eggs, were found. These nests were in all cases among the nests of the Laughing Gulls. Breeds

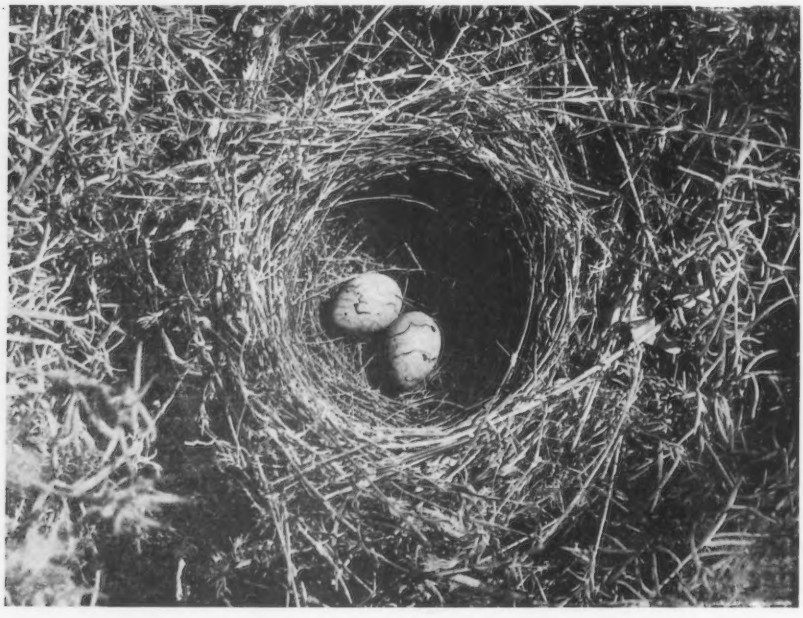

Fig. 42. NEST AND EGGS OF THE GREAT-TAILED GRACKLE.

also very commonly on Padre Island. The doves were seen repeatedly going to the mainland for their food.

42. **Chaemepelia passerina pallescens.** Mexican Ground Dove. About ten of this small species were seen, both on Padre Island and on the mainland, though none happened to be seen on Bird Island. Most likely a breeding species in the vicinity, but no nests were found.

43. **Scardafella inca.** Inca Dove. Four were seen between Corpus Christi and Flour Bluff, and two more on Padre Island on May 31. Also probably a breeding species.

44. **Cathartes aura septentrionalis.** Turkey Vulture. A common breeding species on the mainland, and in suitable places on Padre. Seen daily flying high in the air. Occasionally the birds visit Bird Island, probably attracted there by an odor that would drive most other creatures away!

45. **Cathartes urubu.** Black Vulture. Distinctly less common than the preceding species, but seen almost daily from Bird Island. The species breeds commonly on the mainland, and also probably on Padre.

46. **Circus hudsonius.** Marsh Hawk. A common breeding species in the low, marshy regions of the coast, seen only once over the Laguna Madre near Bird Island. A considerable number was noted between Corpus and Flour Bluff, where there is much low country.

47. **Parabuteo unicinctus harrisi.** Harris Hawk. A familiar daily sight was the high-circling flight of this characteristic south Texas hawk. Between Corpus and Flour Bluff nine of these large hawks were passed, sitting quietly on telegraph poles along the road, indifferent to the traffic beneath them. Probably breeds on the mainland, though no attempt was made to find a nest.

48. **Falco sparverius sparverius.** Sparrow Hawk. A very common breeding species on the mainland and on Padre, and seen but twice from Bird Island. The species lives almost entirely upon the large grasshoppers so abundant in the region. One of the species was found dead on Bird Island.

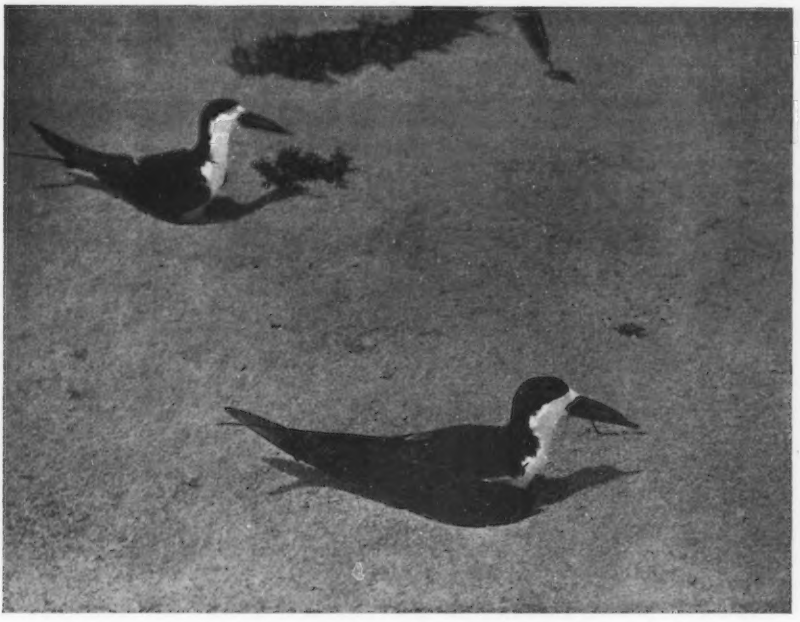

Fig. 43. Black Skimmers Incubating.

49. **Polyborus cheriway.** Audubon Caracara. This queer looking "Mexican buzzard" was seen between Corpus and Flour Bluff—a small flock of six standing on the ground near the road. Again, a single individual visited the pelican rookery on Bird Island on June 1, evidently in search of fish, which it found. Standing on the sand spit at the north end of the island, the bird leisurely tore up and devoured a large mullet.

50. **Geococcyx californianus.** Road-runner. Common on Padre Island only, where breeds in the mesquite thickets. This island seems to be an ideal place for the birds, there being fine breeding sites, and great open sand stretches across which the birds race with most astonishing speed. There is an abundance of insect and reptilian life on the island to afford the birds plenty of food.

51. **Coccyzus americanus americanus.** Yellow-billed Cuckoo. Seen several times on Padre Island, where also a nest of the species was found in a mesquite thicket. A dead specimen was found on Little Bird Island on May 30.

52. **Ceryle alcyon.** Belted Kingfisher. Several seen near Corpus Christi, and again at Flour Bluff, where there are good nesting grounds. A single bird flew, rattling, over Bird Island on May 27, heading for Padre, where there is also a local abundance of good nesting sites. Not as common as one would expect.

53. **Chordeiles acutipennis texensis.** Texas Nighthawk. Seen from shortly before sun-down until dark, and after dark their call-notes could be heard coming from the black void overhead, even above the muttering of the restless birds on the island. Seen over Padre repeatedly, and the species undoubtedly breeds in the vicinity.

54. **Archilochus colubris.** Ruby-throated Hummingbird. Seen twice on Padre, both times the birds coming to rest on the smaller branches of a mesquite tree. On May 29 a male flashed by camp on Bird Island, headed for the mainland. No breeding evidence at hand, though the species is known to breed near Corpus.

55. **Muscivora forficata.** Scissor-tailed Flycatcher. Seen several times on Padre

Fig. 44. Portrait of a Laughing Gull Incubating.

Island, and often on the mainland, in both of which places the species nests. On Padre a bird was seen carrying a good-sized grasshopper, but no nest was found in the very limited time available. Often seen flying over Bird Island, going either to or from the mainland.

56. **Sayornis phoebe.** Phoebe. Common on Padre and on the mainland, but there is nothing to attract the species to Bird Island. On Padre two nests were found under the eaves of an uninhabited shack a little south of Bird Island. Both nests were empty, but gave evidence of having been very recently inhabited.

57. **Cyanocitta cristata cristata.** Blue Jay. Common on the mainland, where the species breeds in abundance. Seen also on Padre, though there is no evidence of breeding on the island. Visited Bird Island several times in passage between Padre and the mainland.

58. **Corvus brachyrhynchos brachyrhynchos.** Crow. Common throughout the re-

gion, breeding (early in April) on the mainland and on Padre. Seen only as transients over Bird Island.

59. **Molothrus ater ater.** Cowbird. Common along the main coastal region, particularly between Corpus and Flour Bluff.

60. **Molothrus ater obscurus.** Dwarf Cowbird. This subspecies, almost indistinguishable from the preceding when seen in the field, was found on Padre Island, May 31, as well as at Flour Bluff on May 26. Decidedly less common than its larger relative.

61. **Megaquiscalus major macrourus.** Great-tailed Grackle. An abundant breeding species on both Bird Islands. The nest is a beautifully built affair of grass, very deep and solidly constructed, located just off of the ground in the succulent vegetation. No nest contained more than three eggs, a majority of them containing but two. All

Fig. 45. NEST AND EGGS OF THE LAUGHING GULL.

the eggs were well along in incubation, and some nests contained young birds well feathered. Pemberton (8) speaks of the depredation of these birds on the eggs of the Reddish Egret. On Bird Island these two species were living quietly and harmoniously side by side.

62. **Cardinalis cardinalis cardinalis.** Cardinal. A common breeding species on the mainland and on Padre, not seen on Bird Island.

63. **Passerina ciris.** Painted Bunting. A single full-plumaged male was seen on Padre on May 31, the only evidence at hand of the presence of the species.

64. **Progne subis subis.** Purple Martin. An abundant breeding species, particularly near Corpus Christi. Found nesting near the uninhabited shack on Padre, the young birds being on the wing on May 31.

65. **Iridoprocne bicolor.** Tree Swallow. A common breeding species in suitable localities on the mainland. Occasionally seen over Bird Island, flying low over the Laguna Madre in pursuit of insects.

66. **Mimus polyglottos leucopterus.** Western Mockingbird. Abundant breeding species on Padre and the mainland.

67. **Toxostoma curvirostre curvirostre.** Curved-billed Thrasher. Several thrashers of this species were seen, and the species no doubt breeds, on Padre Island, as young birds were found.

68. **Penthestes carolinensis agilis.** Texas Chickadee. A common breeding species on Padre, seen also on several occasions on the mainland. Young birds were already out of the nest on May 31.

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Department of Biology, Texas Agricultural and Mechanical College, College Station, Texas, April 17, 1922.

FROM FIELD AND STUDY

Top Speed of the Road-runner.—While motoring along a paved road, August 15, 1921, I had an unusual opportunity of recording the speed of the fast-running Road-runner (*Geococcyx californianus*). The road was situated just above the sea in a private estate known as the Hope Ranch, near Santa Barbara. We were just entering a long driveway bordered on either side with palms, and coasting along on about a three percent grade, when a Road-runner appeared a few rods ahead. The car gained on the bird until about five yards separated us, and I saw it was running at its utmost speed. I instructed my friend, who was driving, not to press him further, and for fully three hundred yards the bird ran from the huge monster in pursuit, the while the speedometer registered exactly fifteen miles per hour. When finally we approached very closely, the bird gave up and flew into a palm, where I plainly saw it, beak agape and apparently much fatigued from the unusual exertion. Shortly after, I saw it sail to the ground and trot slowly away.

The proximity of the car and the closely grown palms were undoubtedly the two obstacles that kept the Road-runner on a straight-away course. It seemed baffled; from its viewpoint the palms probably appeared like a solid hedge. During the run, the bird's position was almost a straight line from beak to tip of tail. The tail drooped a little below the back and was frequently wagged up and down.—H. H. Sheldon, *Santa Barbara, California, June 15, 1922.*

A Southern Station for the Harlequin Duck.—The southernmost record-station for *Histrionicus histrionicus* on the Pacific Coast previous to the present note is Carmel Point, Monterey County, California (Beck, Proc. Calif. Acad. Sci., 4th ser., iii, 1910, p. 69).

About noon on October 8, 1918, at a place on the coast of San Luis Obispo County

about two and one-half miles south of Piedras Blancas, Mr. Joseph Dixon and I saw a full-plumaged male Harlequin Duck diving repeatedly in the rough water among the outlying rocks about 60 yards from the brink of the low bluff where we stood. Some minutes later, the bird hauled up on the side of a rock facing the shore, where it sat some three feet above the surface of the water, preening vigorously. Its conspicuous markings, even to the chestnut of the flanks, showed plainly. Mr. Dixon took a photograph of it at 50 yards range; the image, although too small for reproduction, is there with some detail—perfectly good, permanent "evidence" of the identity of the duck (photo no. 2825, Mus. Vert. Zool.).

On October 14, we passed the place again, and this time saw a pair of Harlequin Ducks in flight above the surf, one very close behind the other, the female foremost.

There is a great extent of rough coast-line, with numerous off-shore rocks, along Monterey and San Luis Obispo counties—just such territory as the Harlequins seem to prefer when not on the inland mountain streams to which they resort during a brief period of the year for nesting. These ducks may well be present there in some numbers and yet as a rule be beyond eye-range from shore.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, June 19, 1922.*

Some New Birds for Oklahoma.—In the farthest northwestern corner of the Oklahoma panhandle, two miles from New Mexico and eight from Colorado, I found several species of birds that apparently have not been previously reported from this state. This is a region of sand-stone mesas, covered with a sparse growth of pinyons, junipers (*Juniperus monosperma*) and scrub oaks; the elevation varies from about 4600 feet in the valley where the town of Kenton is situated, to about 4800 feet on top of the surrounding mesas.

Aphelocoma woodhousei. Woodhouse Jay. Three of these birds were seen on the mesas, June 1, 1922, and two the next day. No new nests were found, but we saw a number of old ones, mere platforms of twigs, that apparently could have belonged to no other bird.

Cyanocephalus cyanocephalus. Pinyon Jay. There were three pairs of these noisy jays on the mesas June 1. My daughter Constance found one of their nests containing an egg and two newly hatched young; this was in a juniper eight feet from the ground. We saw four or five old nests in the junipers and pinyons.

Peucaea cassini. Cassin Sparrow. We saw and heard four of these exquisite songsters from May 30 to June 2; they were all in alfalfa fields about Kenton.

Pipilo fuscus mesoleucus. Canyon Towhee. Common on the sides of the mesas. We found three nests, one on June 1 and two on June 2; the first two each contained three eggs, one being in a juniper and the other in a pinyon, while the last nest was situated in a tree cactus and contained three young.

Psaltriparus plumbeus. Lead-colored Bush-tit. A pair of these little birds, and also a single individual, were seen on the mesas June 1 and 2.—MARGARET M. NICE, *Norman, Oklahoma, June 27, 1922.*

Notes from Imperial Valley.—Duck Hawk (*Falco peregrinus anatum*). While exploring a marsh that in proper season is a popular duck-hunting preserve, near Calipatria, I observed the following novel method of a Duck Hawk in attacking its prey. Three Shovellers had risen near the boat, and at a distance of perhaps seventy-five yards were about fifty feet above the water, when a hawk rose swiftly from concealment among the tules and fastened to the rear of the hindmost duck. The flapping of both attacker and victim carried them about fifty yards to a floating mat of tules, whence I started the hawk a few minutes later. Apparently the duck had not realized its danger, as there was no deviation in its line of flight previous to being struck. Had the hawk struck from above in true falcon style, the prey would have fallen into open water and been lost.

Verdin (*Auriparus flaviceps flaviceps*). Nests of the Verdin were numerous in mesquite-grown gullies in the above locality, among them many that were hardly more than one-third the bulk of the ordinary structure. All these small nests were unlined, with the cavity hardly big enough to hold more than one bird; and they were always

located near others of the regulation size and character. I am unable to learn that these peculiar nests have heretofore been commented upon. To my mind they are *roosting* nests, built for that exclusive purpose, possibly to shelter the male while its mate is brooding.

A mysterious crane (*Grus americana*?). The sonorous notes of cranes were heard on several occasions, always at a great height. In one instance the field-glasses showed five birds in all-dark plumage, circling round and round, in crane fashion, in company with three larger white ones with black, or dark, primaries. As memory serves me, they were identical in appearance with a similar flock seen in northern Illinois in the '80's, and which were doubtless Whooping Cranes. If these were not of that species, what were they? And if they were Whooping Cranes, why in California?

Black-and-White Warbler (*Mniotilta varia*). During the past four years this species has been reported to the writer by local observers a half-dozen times or more, but these reports were never verified by actual specimens until early this last spring, when a bird was taken by Dr. L. B. Bishop near Los Angeles. Later, on April 6, I secured a male at Thermal, in Coachella Valley, feeding among the mesquites. These, I believe, are the second and third recorded captures for southern California. Mrs. L. U. Everhart, of Thermal, reported a specimen there in early March, possibly the same bird secured by me a month later. Apparently this species is becoming less rare in our region, or possibly bird students are making fewer mistakes in identifying the Black-throated Gray species.—L. E. Wyman, *Los Angeles Museum, Los Angeles, California, June 9, 1922.*

A Unique Breeding Colony of Least Terns.—For several years a colony of Least Terns, the western form now called the Brown Least Tern (*Sternula antillarum browni*), had nested on the beach just south of the outskirts of Venice, Los Angeles County. (See Chambers, Condor, x, November, 1908, p. 237.) As this section built up, the terns had a harder and harder time of it trying to raise their young. I have found eggs within twenty feet of an occupied dwelling. Of course, with all the dogs and cats about, as well as curious children, there was not much chance for the poor birds. Finally the terns moved their breeding grounds across a canal, to the very last stretch of sand-dunes, and there nested for several years, but as the town continued to grow in population so did the tern colony decrease. When a bridge was built over the canal, that, of course, meant the end of the colony. The birds struggled along, however, till but a few were left.

On July 8, 1922, while I was hunting over the mud flats, a mile or more back from the sand-dunes, to my surprise I found that the terns had established themselves there in a most unusual sort of place for this species. It was gratifying to find them increased in numbers. They had chosen for their nesting grounds a portion of the dried-up mud flats, a little over a mile from the ocean. They will be in comparative safety there as they are in a posted gun-club preserve quite removed from dogs, cats and dwellings. Several nests were found, no nests at all really, the eggs being simply laid on the hard, dried mud. In some instances, where the mud was soft, the eggs were laid in slight depressions, scratched out by the bird and lined with a few weed stems. At this date sets of two eggs each were seen, but I did not ascertain the stage of incubation. I found two young birds just out of the eggs, one of the usual coloration, the other a light buffy bird. It looked almost yellow beside its nest mate.

The mud on which the birds were nesting, when wet, is of the most tenacious character. On the beaks of the nestlings there were masses of dried mud, accumulated, I suppose, when their bills got wet in being fed by their parents. I cleaned their bills but have been wondering if the mud would interfere with their successful rearing. A nesting site other than sand is a novelty in the life history of the Least Tern. I have seen most of their breeding colonies in southern California and they were all on the sandy beaches a short distance above high tide, or more rarely among the sand-dunes.—Chester C. Lamb, *Los Angeles, California, July 8, 1922.*

The Southward Range of the Santa Cruz Chickadee.—The southernmost place whence *Penthestes rufescens barlowi* has been recorded heretofore is near the mouth of the Little Sur River, Monterey County (Grinnell, Auk, xxi, 1904, p. 367; Jenkins, Condor, viii, 1906, p. 129). Coniferous forest growths of the humid coast type, such as are

inhabited by this chickadee, are, south of the vicinity of Point Sur, much restricted and far scattered. The last mainland representation of such forest is in the vicinity of Cambria, San Luis Obispo County, some 75 miles south-southeast of Point Sur. There are several square miles of woods there, consisting almost solely of the Monterey Pine (*Pinus radiata*).

Mr. Joseph Dixon was collecting at Cambria, October 27 to November 3, 1918, and found Santa Cruz Chickadees to be not uncommon there; he took five skins (now nos. 30232-30236, Mus. Vert. Zool.) on October 28 and November 1. There, then, is an apparently well established and rather far sequestered colony of the species. Comparison with seasonally similar specimens from the vicinity of Monterey shows the Cambria birds to average paler, nearer white, on the mid-ventral surface. This feature, however, is not pronounced enough or sufficiently uniform to warrant my considering it positively of phylogenetic significance.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, June 20, 1922.*

Road-runner Caught in the Act.—Probably everybody "has heard" that Road-runners eat the eggs and young of quail. Heretofore I have been inclined to class this rumor with the other one about their corralling rattlesnakes with cactus.

On July 9 I was inspecting the quail crop at the Tome Gun Club, near Belen, New Mexico. On the bank of an irrigation ditch, grown to willow bushes with here and there a cottonwood tree, my dog flushed a quail, which looked like an old rooster. At the same time, from the same place, the dog flushed a Road-runner, which hopped into a cottonwood. A careful look showed the Road-runner sitting dead still among thick foliage, with a light-colored object in his bill. I shot him, and the dog retrieved. The dog then pointed under the same tree, another quail flushed (the old hen) and on looking carefully I discovered a whole brood of chicks scattering in the weeds. I then examined the spot where the Road-runner had fallen, and found a dead chick, still limber and warm but unmutilated, matching the live chicks in size, and lying within a foot of the blood. The dead chick was still in the downy stage, with ⅛-inch pin feathers on the wing—smaller than a domestic chick when hatched.

The evidence is practically absolute that the Road-runner was caught in the act. His crop was empty. Possibly by coincidence, each of the five other Road-runners seen during the rest of the day were in the immediate vicinity of quail.—ALDO LEOPOLD, *Albuquerque, New Mexico, July 10, 1922.*

The Cedar Waxwing in Mexico.—On February 11 of the present year I was passing through the town of Tehauntepec when I was greeted with what to me was a voice from the old home town, the low, subdued hiss of the Cedar Waxwing (*Bombycilla cedrorum*). There were several small flocks of six or eight taking their morning's exercise in a banana grove and apparently feeding there. During the next several days I was passing up the Tequixistlan River and saw several more flocks of about the same size along the trail. In the vicinity of Port Angel on the Pacific coast during the latter part of February and early in March there were a few of these birds scattered here and there. On April 16, while spending the day in Chapultepec Park in Mexico City, I was again pleasantly surprised to hear these same notes. There was a flock of twenty-nine birds circling around and occasionally settling in the pines, from which they flew down into the grass where they were foraging. Just a week later I was in the city of Monterey in the state of Nuevo Leon in the northern part of Mexico, where again I met a small flock of Cedar Waxwings.

Tehauntepec is in the southern part of Mexico, is but a hundred feet or so above sea-level, is very hot, and has an abundance of irrigated tropical vegetation. The Tequixistlan basin is under about the same conditions, but without the irrigated areas; Port Angel at this season is dry and the trees are for the most part bare. In all of these places the inhabitants are Indians. Mexico City is at 7600 feet elevation, and has a cool climate; its vegetation is of the Oregon or northern California type. In Chapultepec Park, the ancient Aztec kings, the subsequent Spanish conquerors, and the following Mexican presidents, have had their palaces. Monterey is but a few hundred feet above the sea, is very hot, and has the floral and faunal aspect, as well as the climate, of

southwest Texas. All of which goes to show that the Cedar Waxwing in winter shows little choice among different climates and surroundings.—R. H. Palmer, *Instituto Geologico, Mexico, D. F., June 17, 1922.*

Some Birds Recently Observed in Southern California.—The past year, during both the fall and spring migrations, the writer has hunted assiduously in many favorable spots in southern California for the different waders. During these hunts a careful lookout was kept for two of our rarest shore bird visitants, the Ruddy Turnstone (*Arenaria interpres morinella*) and the Surf Bird. No Surf Birds were seen, but seven Ruddy Turnstones were observed. Near Point Mugu, Ventura County, on August 27, 1921, two were seen, and one of them, a male, was secured. Five were seen on the tide flats near Wilmington, Los Angeles County, on May 7, 1922, and two of these were collected. Both were females, one a young bird and the other in nearly full breeding plumage. There are quite a few instances of occurrences of this turnstone during the fall migration, but no spring records from the southern California mainland, though it was met with on San Nicolas Island from March 30 to May 11, 1910 (Willett, Pac. Coast Avifauna, 7, 1912, p. 41).

On August 21, 1921, on the mud flats near Wilmington, there were many large flocks of Northern Phalaropes (*Lobipes lobatus*) (later in the fall many *Phalaropus fulicarius* also), but I was indeed surprised to see a large flock of Wilson Phalarope (*Steganopus tricolor*) busily feeding in the mud near the water's edge. Unlike the Northern Phalaropes, which were swimming constantly, they fed on the banks, though occasionally running into the shallow water. I estimated the flock of Wilson Phalaropes to be somewhat over two hundred birds. They kept in a compact mass and it was difficult to count them, though they were very tame and unsuspicious. All appeared to be in winter plumage, as were the specimens collected. The place was visited several times afterwards at intervals of a few days each, but the birds were not seen again.

On July 4, 1922, three Black-bellied Plover (*Squatarola squatarola*), all in winter plumage, or perhaps young birds, were observed near Venice, feeding among a mixed flock of Long-billed Dowitchers, Least Sandpipers, Greater Yellow-legs, Black-necked Stilts, Hudsonian Curlews, and Marbled Godwits. Were these birds very early fall migrants, very late spring migrants, or had they been there since the past winter?

On February 19, 1922, I took a female Eastern Fox Sparrow (*Passerella iliaca iliaca*) at the mouth of Verdugo Canyon, near Glendale, Los Angeles County. It is quite reddish but not to such an extent as the typical bird from the east.

A short trip to Buena Vista Lake, Kern County, was made on June 11, 1922, in company with Mr. Luther Little. What impressed us most was the irregular occurrence of some of the breeding birds, comparing different years. For several years the water of the lake has been very low, but now, the copious rains of last winter have made it higher than for many previous years. Last season, large numbers of White Pelicans (*Pelecanus erythrorhynchos*) were present all summer, but did not nest; the water was not high enough to form their nesting island and it seems that these birds must have an island or they will not nest. This year, although their island was formed, there were but few Pelicans around and those were not nesting. The reason may have been that this year there are only a few fish left of the myriads that were there formerly.

Western Grebes (*Aechmophorus occidentalis*) were nesting abundantly. Last year none nested (in fact only one was seen), while the year before, Mr. Adriaan van Rossem tells me they were breeding commonly.

White-faced Glossy Ibis (*Plegadis guarauna*) were present in a large breeding colony. This is the first time, after several visits to the lake, that I have found this species nesting there. In the same way, Avocets (*Recurvirostra americana*) breed irregularly; but Black-necked Stilts (*Himantopus mexicanus*) are more constant.—Chester C. Lamb, *Los Angeles, California, July 8, 1922.*

Vaux Swift in Migration.—On April 29, 1922, about 7 P. M., the largest flock of Vaux Swift (*Chaetura vauxi*) I have ever seen or, in fact, heard of, circled over my house several times. By careful estimate I judged the number to be very nearly six

hundred individuals. My observations of the Vaux Swift have heretofore been made only within its breeding range; while this is my first observance of a migrating flock, such an immense gathering of this rather rare wilderness dweller is no doubt a most unusual occurrence.—H. H. SHELDON, *Santa Barbara, California, June 15, 1922.*

Nesting of the Spotted Sandpiper on the Russian River.—As the Spotted Sandpiper (*Actitis macularia*) breeds but sparingly and locally along the larger streams of the coast belt and is thought to be a rare species in the coast region north of Santa Barbara (Grinnell, Distributional List of the Birds of California, p. 53; Grinnell, Bryant and Storer, Game Birds of California, pp. 431-437) a definite instance of its breeding on the Russian River may be of sufficient interest to record. During the period May 29, 1922, to June 2, 1922, I spent a few hours each day observing birds along the Russian River between Hilton and Cosmo in Sonoma County, California, and frequently saw one and sometimes two adult birds of this species flying along the river, always very close to the surface of the water and following the course of the river. These birds flew in the characteristic manner of this species, that is, without raising the wings above the back. They did not fly at all in the manner of sandpipers commonly seen along the shores of San Francisco Bay. Parties of people in boats or canoes did not disturb the course of flight except to cause the birds to swerve to avoid the obstacles by a few yards only.

Again during the period July 20, 1922, to July 26, 1922, I visited the same territory and saw the adult birds and two very small young on a pebbly beach on the right bank of the river about opposite Cosmo. The adult birds were seen flying as before but the young birds could not be induced to fly, although they ran very well and were very apt in hiding in the brush along the bank of the river and in concealing themselves among the stones. The adult birds exhibited the habit of constantly tilting or bobbing the tail, and symptoms of the same trait were slightly noticeable in the young. The food procured apparently consisted of insects, in pursuing which the tilting or bobbing of the tail was greatly accelerated.

I visited this particular beach every day on my last trip, except the first and last days, and found the birds there each time. Upon my approach one of the adult birds began calling and the two tiny young would scurry off along the shore until they found a hiding place. The opportunities I had of seeing the birds repeatedly at close range, the characteristic call note and the habit of bobbing or tilting the tail, leave me without doubt as to the identity of the birds. I also took the precaution of looking at skins in the Museum of Vertebrate Zoology. The fact that the young birds were not yet able to fly is strong evidence that they were hatched not far from the point where seen, although it is said that adult birds of this species have been known to move their young to places of safety. One of the adult birds was always near the young, gave warnings of my approach, displayed evident anxiety when I was about, and when forced to fly returned to near the point of departure, so that there seems no inference but that I was observing a pair of adults and their young.—CLAUDE GIGNOUX, *Berkeley, California, August 6, 1922.*

Additional Capture of a Black-and-White Warbler in California.—On October 11, 1918, at a point near the seacoast about seven miles north of Piedras Blancas, San Luis Obispo County, California, I shot an immature female *Mniotilta varia*. The bird was sighted at early dusk working, nuthatch-fashion, around the base of a cottonwood and among some nearby driftwood. Although the place was shaded I could see with distinctness the contrasting black and white stripes on the head and back of the bird. The geographic location, more exactly, was just to the right of the road-crossing to the Evans ranch, in the bottom of the canyon of San Carpoforo (locally "San Carpojo") Creek and about half a mile from the ocean shore.

That the specimen in question (now no. 30083, Mus. Vert. Zool.) was a "bird of the year" was shown conclusively by the condition of the skull. The bird was very fat. It was in complete first-winter plumage save for the tail; only two of the rectrices (evidently belonging to the juvenal plumage) were of full length, the rest being only about half-way emerged from their sheaths. This condition was probably due to some accident, not being part of the regular molt program.

As to measurements, the bird is small: wing 61.8 mm., exposed culmen 11.5, tarsus 16.5. Ridgway's smallest wing-length for a female of the species is 65 mm. (Birds N. and Mid. Amer., II, 1902, p. 433). It would be useful to know the measurements of other Pacific Coast examples, to the end that the source of the birds wintering with us might be learned. As far as known now, the Black-and-White Warbler does not breed in either Alaska or British Columbia; it looks as though they must come to us across-lots from some area to the eastward or northeastward.

The present record is the seventh for the capture of *Mniotilta varia* in California; that is, the present specimen is the 7th taken; two of the earlier captures were recorded two or more times each. At least four other individuals have been reported as seen. Of course this is an unusually easy bird to identify in the field, by reason both of its conspicuous markings and its peculiar mannerisms. But even so, probably but very few of the total number of Black-and-White Warblers visiting California each year come to human notice.

As suggested by Mr. L. E. Wyman on a preceding page, the frequency with which this bird is observed in California seems to be increasing of late years. This may be due, as he says, to an actual increase in the aggregate number of the birds visiting the state annually. Of course some fluctuations are to be expected, though hardly, I should think, a continual augmentation. More likely, in my mind, the increasing number of records is due directly to the increase in the number and the alertness of ornithological observers.—J. GRINNELL, *Museum of Vertebrate Zoology, University of California, Berkeley, June 19, 1922.*

EDITORIAL NOTES AND NEWS

The annual meeting of the American Ornithologists' Union for 1922, being the fortieth stated meeting, will be held in Chicago, Illinois, the week beginning October 23. The public sessions will be held October 24, 25, and 26 in the new building of the Field Museum of Natural History, situated in Grant Park on the shore of Lake Michigan and within sight and walking distance of the business district and many of the best hotels. Since this will be the first stated meeting of the Union to be held west of the Atlantic seaboard, it is hoped that it may be widely representative of the whole country, with a good attendance from both East and West. The usual participants at eastern meetings, including the well known ornithologists of New York, Boston, Philadelphia and Washington, will be well represented; and it will be a particularly happy occasion if a good delegation is present from the Pacific Coast. From Chicago itself and from the states of the Middle West and South a large attendance is confidently expected. It is proposed to hold an exhibition of bird paintings following the example so successfully set at the Washington meeting in 1918. This feature will be especially developed and doubtless will be greatly appreciated by those who have not previously had opportunity to see a large and varied collection of original paintings of birds. Besides pictures to be exhibited by the artists themselves, it is hoped that pictures owned by various members of the Union will be loaned for the occasion under terms which will entail no expense or risk to the owners. Correspondence in regard to this is invited by the Chairman of the local committee. The committee of arrangements consists of Wilfred H. Osgood (chairman), Percival B. Coffin, Ruthven Deane, O. M. Schantz, and R. M. Strong, together with the President and Secretary of the A. O. U., ex-officio.

Mr. A. C. Bent, of Taunton, Massachusetts, is at work upon the fifth volume of his Life Histories, relating to the ducks, geese and swans. He will be glad of contributions of information relative thereto and likely to be additional to the matter already accumulated.

The list of the Board of Governors of the Cooper Club which appeared in the last issue of THE CONDOR omitted, by inadvertence, the names of Donald R. Dickey, W. B. Judson, and Curtis Wright. These should have been included.

A good deal is being said in the daily press about an alleged hybrid between turkeys and fowls, which goes under the name "turkhens" or "turkens". A fertile hybrid between so dis-related birds would be rather surprising. The evidence at hand indicates

that the "turken" is in no sense a hybrid but is a large, vigorous strain of fowl, long known in central Europe, and only recently imported into the United States.

Mr. Joseph Mailliard, of the California Academy of Sciences, is carrying on field-work this fall in the Feather River district.

Mr. Harry S. Swarth, of the California Museum of Vertebrate Zoology, is spending the autumn months in north-central Arizona, collecting birds and mammals.

Dr. Louis B. Bishop has spent the summer at Carmel, where he carried on field work with the birds as demands upon his time in other connections permitted. Dr. Bishop has made some interesting discoveries which he will report shortly in THE CONDOR.

Mr. and Mrs. Charles W. Michael, permanently residents in the Yosemite Valley, California, have been keeping daily record of the birds they see there, and sending these records month by month for permanent deposit in the California Museum of Vertebrate Zoology. Their reports, complete since June, 1920, are annotated species by species and also summarized in tabular form, day by day. They thus show in readily understood manner the seasonal movements of the birds at a very interesting station where both altitudinal and latitudinal migrations are in evidence.

The Sixteenth Annual Report of the California Audubon Society (issued June 28, 1922) is before us. It consists mainly of the report of the Secretary, Miss Helen S. Pratt, and this is written in vivacious vein, optimistic, and for the most part free from extreme "protectionist" sentiment. A profoundly true aphorism set forth by the Secretary in regard to the Barbour bill (creating the Roosevelt-Sequoia National Park in the southern Sierra Nevada) is this: "National parks are NATIONAL MUSEUMS. Their purpose is to preserve forever, in their original untouched condition, certain few, small, widely-separated examples of the American Wilderness of the pioneer and the frontiersman; of the works and processes of Nature unblemished by men's hands; of our native wild animals living natural lives in the natural homes of their ancestors."

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

APRIL.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held at the Los Angeles Museum at 8 P. M., April 26, 1922. Dr. Rich had the chair, with others present as follows: Mesdames Anthony, Fargo, Law, Miller, Mix, Schneider, Warmer; Miss Burnell and Miss Pratt; Messrs. Appleton, Barnes, Bishop, Chambers, Colburn, Hanaford, Hilton, Howell, King, Law, Lamb, Little, Miller, Pierce, Robertson, Warmer and Wyman. Among the visitors were Mesdames Bishop and Wyman; Misses Evans, Fargo, Wetherell and Wilcox.

Minutes of the previous meeting were read and approved, while those of the Northern Division were read by title only. Applications for membership were: Mrs. H. F. Thompson, Los Angeles; Ella A. Evans, Exeter; and Charles Sapp, Long Beach, all by Charles A. Warmer. Mrs. Silkman E. Hyde, Regina, Idaho; Elmer Langevin, Crookston, Minn.; and Carl H. Bryant, Atascadero, by W. Lee Chambers. Miss Nellie May Brown, Los Angeles, by A. van Rossem. Robert R. McLean, San Diego, by C. S. Sharp. Mrs. L. U. Everhart, Thermal, by L. E. Wyman. The Northern Division sent the names of Archibald W. Bell and Helen Genevieve Corwin, of Berkeley.

A letter from Mr. W. L. Dawson inviting the club members to attend the formal opening of the new building of the Museum of Comparative Oology was read by the secretary. Formal business ended, various members who had recently visited the desert spoke on their experiences and observations. The session closed with the usual general discussion, and inspection of a series of skins and nests collected by the secretary in Imperial and Coachella valleys. Adjourned.—L. E. WYMAN, *Secretary.*

MAY.—The regular meeting of the Southern Division was held at the Los Angeles Museum, 8 P. M., May 25, 1922. Dr. Rich presided, with others in attendance as follows: Mrs. Law, Miss Miller, Miss Potter; Messrs. Barnes, Bishop, Chambers, Hanaford, Hilton, Holland, Howell, King, Lamb, Law, Morcom, Reis and Wyman. Mrs. Lamb, Miss Swarth, Mrs. Wyman and Mr. Greene were visitors.

Minutes of the previous meeting were read and approved, followed by reading of those of the Northern Division. Mr. Chambers presented for membership the names of Rev. M. Lee, Tulare, and Charles Ketchum Averill, Bridgeport, Conn. Franklin J. Smith sponsored Bertram O. Betterley, Eureka. The Northern Division sent the name of Vernon L. Tenney, Berkeley. Mr. Law spoke informally on the latest results of his bird-banding operations, the subject proving even more interesting than formerly. A tray of gull skins representing at least one new and unrecorded species for

this coast, received general attention. Dr. Bishop described certain plumage features not shown in the specimens at hand. Adjourned.—L. E. WYMAN, *Secretary.*

JUNE.—The regular monthly meeting of the Southern Division was held at the Los Angeles Museum, June 29, 1922, at 8 P. M. In the absence of both presiding officers, Mr. Howard Robertson was acclaimed chairman for the evening. Other members were present as follows: Messrs. Barnes, Chambers, Hanaford, Howell, King, Lamb, Law, Marshall and Wyman; Mrs. Anthony, Mrs. Schneider and Miss Pratt. Among the visitors were Mesdames Joy, Lamb and Wyman, and Mr. Allen.

Minutes of the May meeting were read and approved. Applications for membership were: James H. Langstroth, Silver City, New Mexico, by R. T. Kellogg; Ella Haines Ellis, Los Angeles, by Miss Miller; W. I. Allan, Lamanda Park, by J. Eugene Law; Mrs. R. W. Fenn, Lindsay, by Miss Pratt; William H. Ball, Eureka, by Franklin J. Smith; James S. Trewhella, M. D., Montebello, and Paul E. Simons, M. D., Riverside, by Dr. Warmer. The Northern Division sent the name of John D. Patterson, Patterson.

The subject of bird-banding was again a lively topic. Mr. Law moved that a committee be organized to be known as the Bird Banding Chapter of the Southern Division of the Cooper Ornithological Club, whose purpose shall be to stimulate interest in the bird banding movement. It shall have a chairman and a secretary, the former to be appointed by the president of the Southern Division and the latter to be named by such chairman. The committee shall hold meetings at such times and places as it may choose, not less than once a month, and shall make frequent reports to the Southern Division of its progress and activities. Any member of the Cooper Club who desires may become a member of this committee by signifying his desire so to do and paying 25 cents per annum to the secretary of the committee. Motion seconded by Mr. Barnes and carried unanimously, whereupon Mr. Robertson appointed Mr. Law chairman of said committee. A half-hour was spent in general discussion and inspection of a tray of grosbeaks and orioles. Adjourned.—L. E. WYMAN, *Secretary.*

NORTHERN DIVISION

MAY.—The regular meeting of the Northern Division of the Cooper Ornithological Club was held in the usual place on May 25. Mr. Swarth presided, and the following members and friends were in attendance: Mesdames Allen, Bennet, Culver, Grinnell, Mead, Reygadas, and Wythe; Messrs. Bryant, Bunker, Cooper, Evermann, Grinnell, W. Grinnell, Miller, Swarth and Torrey. Visitors present were Mrs. Edmonds, Mrs. Kerr, and Mr. Thomas.

The April minutes were read and approved, after which the name of Mr. John D. Patterson, Patterson, California, was presented by Mr. J. Grinnell. The resignation of Mr. Leverett Mills Loomis was presented and was accepted on motion of Mr. Cooper, seconded by Miss Culver. A communication from Miss Van Gaasbeck reported observations at Lake Merritt Park, and Dr. Grinnell reported the discovery by Mr. LaJeunesse of the eggs of the Cowbird in the nests of the Song Sparrow, Willow Goldfinch and Pileolated Warbler near Irvington. The program of the evening consisted of a paper given by Mr. R. C. Miller on "Various Theories of Soaring Flight." Adjourned.—AMELIA S. ALLEN, *Secretary.*

JUNE.—The regular meeting of the Northern Division of the Cooper Ornithological Club was held at the Museum of Vertebrate Zoology at eight o'clock on June 22, 1922.

President Swarth presided. Other members present were: Mesdames Allen, Bamford, Bogle, Grinnell, Kelly, Reygadas, and Schlesinger; Misses Culver, Flinn, Lindemann, Pringle, Thomson, and Van Gaasbeck; Messrs. Bunker, Carriger. Dixon, Grinnell, Kloss, LaJeunesse, Miller, and Storer. Visitors present were Mrs. Lathrop, Mr. and Mrs. Schenck, and Mr. Blickensderfer. The minutes of the preceding meeting were read and approved, and the April and May minutes of the Southern Division were read. Applications were received from Mr. Frank Bacon, Berkeley, sponsored by H. C. Bryant, and Mr. Frank O. Adams, Vancouver, sponsored by Joseph Mailliard.

Mr. LaJeunesse reported the finding of nine Cow-bird eggs this season in nests of small birds near Irvington. On motion of Dr. Grinnell, seconded by Mrs. Allen, Mr. LaJeunesse and Mr. Carriger were authorized by the club to dispose of the offending Cow-birds. Dr. Grinnell then presented a paper entitled "An Inquiry into the Supposed Decrease of Bird-life in California". After discussion, Mr. Blickensderfer was introduced and showed his wonderful photographs of Colorado birds. Adjourned.—AMELIA S. ALLEN, *Secretary.*

For Sale, Exchange and Want Column. — **Any Cooper Club member is entitled to one advertising notice in each issue free. Notices of over ten lines will be charged for at the rate of 15 cents per line. For this department, address W. LEE CHAMBERS, *Altadena, Los Los Angeles County, California.***

WANTED, for cash or exchange—The Auk, vol. 3, no. 4, vol. 6, no. 1; A. O. U. Check-list N. A. Birds, 3rd ed.; The Osprey, vol. 1, nos. 2, 4, 5, 6, 7, 9, vol. 2, no. 3, any after 9, vol. 3, any or all numbers, vol. 4, any after 9, vol. 5, nos. 1, 8, vol. 6, any number except 2.—J. E. HALLINEN, *Cooperton, Oklahoma.*

THE GAME BIRDS OF CALIFORNIA, by Grinnell, Bryant and Storer; large 8vo, pp. x+642, 16 colored plates, 94 figures in text; cloth bound. A comprehensive work, including full information down to 1917, compiled with regard to the needs of the nature-lover, sportsman, and serious ornithologist; $6.00 net.—O. M. WASHBURN, *Manager, University of California Press, Berkeley, California.*

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ASSISTANT CURATOR WANTED—Applications are invited for the position of Assistant Curator in the California Museum of Vertebrate Zoology. Candidate should have some knowledge of systematic ornithology and mammalogy; he should have a clear and accurate style of handwriting, so as to do labelling and cataloguing; he must be ready and willing to meet freely and explicitly the desires of his employer in regard to methods of carrying on his work (yet he must be possessed of initiative and energy). The initial salary for a person of acceptable qualifications is twelve hundred dollars per year. Correspond with: THE DIRECTOR, *Museum of Vertebrate Zoology, University of California, Berkeley, California.*

COOPER CLUB PUBLICATIONS

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PACIFIC COAST AVIFAUNA

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The titles listed are 1785 in number, and cover the period from 1797 to the end of the year 1907. These bibliographical entries are rounded out by a series of indexes—to authors, to local lists by localities, to the serial publications cited, and to the bird names mentioned, both vernacular and systematic. According to one authority upon the subject: "It is safe to say that this is the most important contribution to the bibliography of North American ornithology since the Coues-ian contributions of 1878-1880 set the high standard here closely followed". Indispensable to a student of western birds.

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Contains extensive and accurate accounts of the local distribution, nesting, and migration of the 377 species and subspecies of birds found on the Pacific slope of southern California, from San Luis Obispo County to the Mexican line. Anyone interested in the birds of southern California will have constant need of this publication, as a check upon his own observations.